

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Currently amended): A rim disk assembling device for a vehicle full face wheel, comprising:

a centering rod moving up and down along a center axis of a full face wheel;

a rotary table rotated about the center axis by a rotating means;

a hub hole fitting member disposed on the rotary table to radially position a disk by fitting to the hub hole of the disk;

a disk supporting member disposed on the rotary table to support the disk from a designed surface side of the area joined to a rim;

a rim supporting member moving down along the center axis together with the centering rod to support the rim disposed on the disk supported with the hub hole supporting fitting member and the disk supporting member by pressing from above its rim flange portion;

a rim position restraining means for radially positioning the rim by radially restraining an inside circumferential surface of a rim drop portion centered on the centering rod; and

a rod connecting means for connecting the centering rod that has moved down along the center axis to the rotary table,

wherein the device is adapted to bring into a pressed contact state the disk radially positioned with the hub hole fitting member and the rim radially positioned with the rim position restraining means by sandwiching them between the disk supporting member and the rim supporting member and by pulling up the centering rod connected through the rod connecting means to the rotary table while pressing down the rim flange portion with the rim supporting member.

Claim 2 (Previously presented): The rim disk assembling device according to Claim 1, wherein the rod connecting means comprises:

a clamp portion formed at the tip of the centering rod;
a rod insertion hole formed in a center of the rotary table for the centering rod to be inserted into; and

a rod gripping device disposed on the underside of the rotary table to grip and fix the clamp portion of the centering rod inserted into the rod insertion hole and projecting from the underside and to bring the rotary table and the centering rod into a connected state in which they can move as a single body.

Claim 3 (Currently amended): The rim disk assembling device according to Claim 1, comprising:
a vertical motion rotary unit on which a rod pulling device for pulling the centering rod into action, a the rim supporting member, and a the rim position restraining means are mounted; and
a vertical motion frame to which the vertical motion rotary unit is connected to be rotatable and movable in a vertical direction as a single body, and connected to a vertical driving device for driving the body in the vertical direction,
wherein the vertical motion rotary unit rotates as a single body with the rotary table when the disk and the rim are brought into sandwich-pressed contact state by setting the rotary table connected to the centering rod into pulling action by means of the rod pulling device.

Claim 4 (Currently amended): The rim disk assembling device according to Claim 3, wherein the vertical motion rotary unit has:

a the rim supporting member and a the rim position restraining means mounted both on its underside;
a rod pulling device disposed in its upper part; and
a vertical motion table with a rod passage hole formed in its center for a centering rod to be inserted into to be vertically movable.

Claim 5 (Previously presented): The rim disk assembling device according to Claim 4, wherein the rim position restraining means comprises:

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a plural number of radial restraining members disposed in the vertical motion table at about constant angular intervals around the centering rod, each made up of a holding case, suspended from a vertical motion table, that is urged downward, and is vertically movable; and a pressing member installed in the holding case, and is radially movable, and urged radially inward, with its inside end having a pressed portion, and with its outside end having a contacting portion for contacting the inside circumferential surface of the rim drop portion; and

a conversion guide member suspended from the vertical motion table to contact the pressed portions of the pressing members along with the downward motion of the vertical motion table, to cause the pressing members to extend radially outward, and to cause the contacting portions of the pressing members to press against the inside circumferential surface of the rim drop portion in the state in which the rim supporting member contacts the rim flange portion from above.

Claim 6 (Previously presented): The rim disk assembling device according to Claim 1, wherein the rotating means is a rotating device with a rotary shaft disposed under the rotary table along the center axis to rotate the rotary table.

Claim 7 (Previously presented): The rim disk assembling device according to Claim 6, wherein the rotating device is a direct drive motor.

Claim 8 (Withdrawn): A method for assembling a disk and a rim of a vehicle full face wheel at a time of welding comprising the steps of:

providing a rim disk assembling device that includes a centering rod that moves up and down along a center axis of the full face wheel, and a rotary table rotatable about the center axis by a rotating means;

radially positioning one disk by means of a hub hole fitting member that is part of the assembling device and is disposed on the rotary table and is fit to a hub hole of the disk;

moving a rim supporting member, that is part of the assembling device, down along the center axis together with the centering rod to support the rim disposed on the disk support with the hub hole supporting member and the disk supporting member by pressing from above a rim flange portion of the rim;

radially positioning the rim with a rim position restraining means, that is part of the assembling device, by radially restraining an inside circumferential surface of a rim drop portion centered on the centering rod;

connecting the centering rod that has moved down along the center axis to the rotary table with a rod connecting means that is part of the assembling device; and

bringing into a pressed contact state the disk radially positioned with the hub hole fitting member and the rim radially positioned with the rim position restraining means by sandwiching the two between the disk supporting member and the rim supporting member and by pulling up the centering rod connected through the rod connecting means to the rotary table, while pressing down the rim flange portion with the rim supporting member.

Claim 9 (New): A rim disk assembling device for a vehicle full face wheel, comprising:

- a centering rod moving up and down along a center axis of a full face wheel;
- a rotary table rotated about the center axis by a rotating means;
- a hub hole fitting member disposed on the rotary table to radially position a disk by fitting to the hub hole of the disk;
- a disk supporting member disposed on the rotary table to support the disk from a designed surface side of the area joined to a rim;
- a rim supporting member moving down along the center axis together with the centering rod to support the rim disposed on the disk supported with the hub hole fitting member and the disk supporting member by pressing from above its rim flange portion;
- a rim position restraining means for radially positioning the rim by radially restraining an inside circumferential surface of a rim drop portion centered on the centering rod;

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a rod connecting means for connecting the centering rod that has moved down along the center axis to the rotary table, wherein the device is adapted to bring into a pressed contact state the disk radially positioned with the hub hole fitting member and the rim radially positioned with the rim position restraining means by sandwiching them between the disk supporting member and the rim supporting member and by pulling up the centering rod connected through the rod connecting means to the rotary table while pressing down the rim flange portion with the rim supporting member;

wherein the rod connecting means comprises:

a clamp portion formed at the tip of the centering rod;

a rod insertion hole formed in a center of the rotary table for the centering rod to be inserted into; and

a rod gripping device disposed on the underside of the rotary table to grip and fix the clamp portion of the centering rod inserted into the rod insertion hole and projecting from the underside and to bring the rotary table and the centering rod into a connected state in which they can move as a single body.

Claim 10 (New): A rim disk assembling device for a vehicle full face wheel, comprising:

a centering rod moving up and down along a center axis of a full face wheel;

a rotary table rotated about the center axis by a rotating means;

a hub hole fitting member disposed on the rotary table to radially position a disk by fitting to the hub hole of the disk;

a disk supporting member disposed on the rotary table to support the disk from a designed surface side of the area joined to a rim;

a rim supporting member moving down along the center axis together with the centering rod to support the rim disposed on the disk supported with the hub hole fitting member and the disk supporting member by pressing from above its rim flange portion;

a rim position restraining means for radially positioning the rim by radially restraining an inside circumferential surface of a rim drop portion centered on the centering rod;

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a rod connecting means for connecting the centering rod that has moved down along the center axis to the rotary table, wherein the device is adapted to bring into a pressed contact state the disk radially positioned with the hub hole fitting member and the rim radially positioned with the rim position restraining means by sandwiching them between the disk supporting member and the rim supporting member and by pulling up the centering rod connected through the rod connecting means to the rotary table while pressing down the rim flange portion with the rim supporting member;

a vertical motion rotary unit on which a rod pulling device for pulling the centering rod into action, the rim supporting member, and the rim position restraining means are mounted;

a vertical motion frame to which the vertical motion rotary unit is connected to be rotatable and movable in a vertical direction as a single body, and connected to a vertical driving device for driving the body in the vertical direction, wherein the vertical motion rotary unit rotates as a single body with the rotary table when the disk and the rim are brought into sandwich-pressed contact state by setting the rotary table connected to the centering rod into pulling action by means of the rod pulling device;

wherein the vertical motion rotary unit includes:

the rim supporting member and the rim position restraining means mounted both on its underside;

a rod pulling device disposed in its upper part; and

a vertical motion table with a rod passage hole formed in its center for a centering rod to be inserted into to be vertically movable.

wherein the rim position restraining means comprises:

a plural number of radial restraining members disposed in the vertical motion table at about constant angular intervals around the centering rod, each made up of a holding case, suspended from a vertical motion table, that is urged downward, and is vertically movable; and a pressing member installed in the holding case, and is radially movable, and urged radially inward, with its inside end having a pressed portion, and with its outside end having a contacting portion for contacting the inside circumferential surface of the rim drop portion; and

a conversion guide member suspended from the vertical motion table to contact the pressed portions of the pressing members along with the downward motion of the vertical motion table, to cause the pressing members to extend radially outward, and to cause the contacting portions of the pressing members to press against the inside circumferential surface of the rim drop portion in the state in which the rim supporting member contacts the rim flange portion from above.